REMARKS

The Final Office Action mailed March 25, 2003 has been carefully considered. Reconsideration and allowance of the subject application are respectfully requested.

No amendments have been made to the subject application. Accordingly, it is believed that this Amendment is entitled to entry and consideration by the Examiner as a matter of right. For at least the following reasons, it is respectfully submitted that the claims are allowable.

In the Final Office Action, the Examiner has rejected combinations of the claims under 35 USC 103 as being rendered obvious by various combinations of Vetro et al. ("Frequency Domain Down-Conversion of HDTV Using an Optimal Motion Compensation Scheme," Journal of Imaging Systems and Technology, Vol. 9, No. 4, August 1998, pp. 274-282), Ng (U.S. Patent No. 5,262,854), Bose et al. (U.S. Patent No. 6,215,822), Dugad et al. ("A Fast Scheme for Altering Resolution in the Compressed Domain," IEEE Computer Science Conference on Computer Vision and Pattern Recognition, June 1999, pp. 213 - 218), Kim et al. (U.S. Patent No. 6,175,592), and/or Rosman et al. (U.S. Patent No. 6,222,550). Applicants respectfully traverse these claim rejections.

As the Examiner is well aware, in order to establish a *prima facie* case of obviousness:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. . . **The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure** [emphasis added]. *In re Vaech*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). *Manual of Patent Examining Procedure* (MPEP), 8th Edition, August 2001, § 2143.

In pertinent part, Vetro et al. teaches processing schemes that involve down conversion and motion compensation. Significantly, as is acknowledged by the Examiner at pages 3 and 5 of the Final Office Action, Vetro et al. does not disclose "performing motion compensation for the downsampled image in the spatial domain, the performing of the motion compensation comprising scaling a motion vector in accordance with a downsampling ratio, the motion vector specifying relative distance of reference data from a macroblock," as is required in Applicants' independent claims. (See, independent claims 1, 16, 28, and 32).[1]

Ng discloses that 8 by 8 blocks of data from VRAM are decimated by a decimator down to 4 by 4 blocks, and these 4 by 4 blocks are supplied to an adder in accordance with the data format of inverse transform image data applied to the adder from another decimator. (See, Ng, column 6, line 65 to column 6, line 7; See also, Ng's Figure 5).

Also in Ng, a motion compensated predictor receives "motion vectors" (as the term "motion vectors" is defined and used in Ng) and accesses blocks of pixel data **at addresses in VRAM identified by such "motion vectors."** See, e.g., Ng, column 3, line 64 to column 4, line 18, column 5, lines 38 to 64). As defined and used in Ng:

> Motion vectors . . . are codewords which identify 8 by 8 blocks of pixels in frames from which predicted frames are generated, which blocks most closely match the block currently being processed in the frame currently being encoded. (Ng, column 4, lines 34-39).

In making the rejections, the Examiner asserts, "It would have been obvious . . . to include the scheme of Ng [or Bose al.] in the method of Vetro in order to improve the image recognition accuracy . . . Doing so would convert the format of the motion vector so as to

[1] At page 7 of the Final Office Action, the Examiner asserts that Vetro et al. inherently discloses "the DCT image is stored as complying with an MPEG specification" because "the Vetro method is to solve the drift and block artifact problems of MPEG-2." Contrary to the Examiner's assertion, Vetro et al.'s Abstract does not teach that Vetro et al. inherently discloses these features, and Applicants respectfully submit that Vetro et al. nowhere teaches that the DCT image in Vetro et al. is stored in compliance with an MPEG specification. Accordingly, as was requested in Applicants' previous Amendment, Applicants once again respectfully traverse this assertion by the Examiner. Pursuant to MPEP § 2112, Applicants respectfully request that the Examiner either withdraw this assertion, cite a specific passage in Vetro et al. that teaches that the DCT image in Vetro et al. is stored in compliance with an

improve accuracy of image reconstruction so that the quality of the method is improved."[2] Final Office Action, pages 6 and 9. Applicants respectfully traverse this assertion by the Examiner.

Once again, contrary to the Examiner's assertions, the "motion vectors" disclosed in Vetro et al. are vastly different in purpose, effect, result, and operation from the "motion vectors" disclosed in Ng. (Vetro et al., Section 4.3, page 11, Bose et al., col. 17, lines 4-25, and Ng, col. 4, lines 34-39). Also contrary to the Examiner's assertion, there is no motivation or suggestion in any of the prior art of record to selectively combine the teachings of Vetro et al., Bose et al., and Ng in the manner contemplated by the Examiner. Additionally, given the stark differences between the "motion vectors" disclosed in Vetro et al., Bose et al., and Ng, none of the prior art of record, whether taken singly or in any combination, can be said to suggest to those skilled in the art either the desirability of the selective combination of teachings of Vetro et al. and Ng proffered by the Examiner, or a reasonable likelihood of success of this selective combination.

Significantly, the Examiner acknowledges that neither Vetro et al. nor Ng disclose "the motion vector specifying relative distance of reference data from a macroblock." Final Office Action, page 6. However, the Examiner asserts, "the definition of the motion vector in MEPQ [sic, presumably 'MPEG'] is the relative distance from a reference macroblock to a predicted macroblock. Thus, the claim language is inherent in the definition of the motion vector." Final Office Action, page 6.[3] However, the Examiner has provided no specific prior art citation to support this assertion. As was requested in Applicants' previous Amendment, pursuant to MPEP § 2144.03, Applicants once again respectfully request that the Examiner supply a specific citation to a prior art reference to support the Examiner's assertion, or withdraw the Examiner's assertion.

MPEG specification, or cite a specific passage in Vetro et al. that indicates that this is **necessary** to Vetro et al.'s disclosed techniques.

[2] Contrary to the Examiner's assertion at page 6 of the Final Office Action, the portions of Bose et al. and Vetro et al. do not support the Examiner's assertion that ". . . Doing so would convert the format of the motion vector so as to improve accuracy of image reconstruction so that the quality of the method is improved." Final Office Action, page 6. Accordingly, as was requested in Applicants' previous Amendment, pursuant to MPEP § 2144.03, Applicants once again respectfully request that the Examiner supply a specific citation to a prior art reference to support the Examiner's assertion, or withdraw both the Examiner's assertion and the rejections based thereon.

[3] Moreover, apparently, in response to Applicants' arguments in Applicants' previous Amendment, the Examiner appears to have withdrawn the Examiner's previous assertion that Ng discloses an MPEG or MPEG-like system.

Additionally, as stated above, the respective definitions and uses of the "motion vectors" disclosed in Vetro et al. and Ng are irreconcilably different from each other. Accordingly, as a matter of logic, the Examiner's assertion that the definition of the claim language "motion vector" recited in Applicant's claims is "inherently" disclosed in both Vetro et al. and Ng clearly is in error.

Concerning Bose et al., the Examiner asserts, "The limitation [that is acknowledged by the Examiner to be missing from Vetro et al. and Ng] is well known in the art. Bose, in an analogous environment, explicitly teaches [this] limitation . . ." Final Office Action, page 6. Even assuming, for the sake of argument, that Bose et al. discloses a motion vector that specifies relative distance of reference data from the processed macroblock, none of the prior art relied upon the Examiner suggests the selective combination of teachings of Vetro et al., Ng, and Bose et al. relied upon by the Examiner. Indeed, even as characterized by the Examiner, the respective definitions and uses of the "motion vectors" disclosed in Vetro et al., Ng, and Bose et al. are mutually different, and inconsistent with each other. See, Final Office Action, pages 2 and 6. No guidance is supplied by any of the prior art relied upon by the Examiner that would resolve their mutually contradictory teachings so as to suggest the selective combination of teachings proffered by the Examiner. Additionally, given the stark differences between the "motion vectors" disclosed in Vetro et al., Ng, and Bose et al., none of the prior art of record can be said to suggest to those skilled in the art a reasonable likelihood of success of this selective combination.

In a vain effort to try to overcome these deficiencies of Vetro et al., Ng, and Bose et al., the Examiner asserts:

> In the instant case, the motion vectors in Ng are codewords which identify 8 x 8 block [sic] of pixels as applicant pointed out, while the motion vectors in Vetro is [sic] vectors (or codewords) used to specify the neighborhood of blocks .

The Examiner has yet to provide any evidence to support the Examiner's suggestion in Final Office Action that the MPEG definition of "macroblock" is inherently disclosed in Ng.

. . Thus, the motion vectors in Ng and Vetro have no significant difference to prevent the combination of references. Final Office Action, page 2.

However, contrary to the Examiner's assertion, even a casual review of the definitions of the term "motion vector" given in Vetro et al., Ng, and Bose et al. (and, for that matter, as characterized by the Examiner) reveals that these definitions cannot properly be characterized as lacking "significant differences" that would prevent the selective combination of references proffered by the Examiner. Clearly, the Examiner's combination of Vetro et al., Ng, and Bose et al. is based upon improper hindsight!

Thereafter, the Examiner asserts "The motivation to combine Bose [with Vetro et al. and Ng] is explicitly disclosed in Bose and Vetro (Bose, col. 3 to col. 4, Vetro, abstract)." Final Office Action, page 3. However, even a casual reading of these portions of Bose et al. and Vetro et al. reveals that these portions of Bose et al. and Vetro et al. do not explicitly provide such motivation, but instead, clearly evidences that the Examiner has relied upon improper hindsight in rejecting the claims of the subject application. Furthermore, even assuming, for the sake of argument, that Vetro et al., Ng, and Bose et al. are in the same field and/or address the same problem to be solved, this would only evidence that they might arguably constitute mutually analogous art. Unless they also provide motivation for the selective combination proffered by the Examiner (which they clearly do not), their combination cannot be said to render obvious Applicants' claims.

It is not seen that Dugad et al., Kim et al., and/or Rosman et al. overcome these deficiencies of Vetro et al., Ng, and Bose et al. so as to suggest, when taken in combination with Vetro et al., Ng, and Bose et al., Applicants' claimed invention. Dugad et al. is cited by the Examiner as disclosing the use of a bilinear interpolation scheme for downsampling. Kim et al. is cited by the Examiner as disclosing the display of a downsampled spatial image such that the resulting non-uniform vertical spacing of data signal lines appear substantially uniform on a low resolution monitor screen. Rosman et al. is cited by the Examiner as disclosing use of a 3D

pipeline to perform bilinear interpolation. Even assuming, *arguendo*, that Dugad et al., Kim et al., and Rosman et al. disclose these features, none of these references can be said to any guidance that would resolve the mutually contradictory teachings of Vetro et al., Ng, and Bose et al., so as to suggest the selective combination of teachings of Vetro et al., Ng, and Bose et al. proffered by the Examiner. Additionally, Dugad et al., Kim et al., and Rosman et al. cannot be said to teach or suggest, whether taken alone or in any combination, a reasonable likelihood of success of this selective combination.

Thus, for the above reasons, no combination of Vetro et al., Ng, Bose et al., Dugad et al., Kim et al., and Rosman et al. can be said to render obvious the claims. Thus, it is respectfully submitted that the Examiner's rejections of the claims under 35 USC 103 as being rendered obvious by various combinations of Vetro et al., Ng, Bose et al., Dugad et al., Kim et al., and Rosman et al. have been overcome.

In the event that the Examiner deems personal contact desirable in further disposition of this case, the Examiner is invited to call the undersigned attorney at 508-865-4168.

Please charge any shortages and credit any overcharges to Deposit Account number 02-2666.

Respectfully submitted,

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